IN THE CLAIMS:

Please substitute the following claims for the same numbered claims in the application.

Claim 1 (Currently Amended): A method for evaluating and outputting a final clustering solution for a plurality of multi-dimensional data records, said data records having multiple, heterogeneous feature spaces represented by feature vectors, said method comprising:

defining a distortion between two feature vectors as a weighted sum of distortion measures on components of said feature ~~vector~~ vectors;

clustering said multi-dimensional data records into k-clusters using a ~~"convex programming"~~ convex programming formulation; ~~and~~

selecting feature weights of said feature vectors~~.~~, and

minimizing distortion of said k-clusters.

Claim 2 (Currently Amended): The method according to claim 1, wherein said selecting of feature weights ~~are~~ is optimized by an ~~"objective"~~ objective function to produce said ~~solution of a~~ final clustering solution that simultaneously minimizes average intra-cluster dispersion and maximizes average inter-cluster dispersion along all said heterogeneous feature spaces.

Claim 3 (Original): The method according to claim 1, wherein said clustering includes

initially applying a local minima of said clustering.

Claim 4 (Original): The method of claim 1, wherein said clustering comprises a k-means clustering algorithm.

Claim 5 (Currently Amended): The method of claim 2, wherein said minimizing distortion of individual clusters includes taking said data records and iteratively determining *Voronoi* partitions until said ~~"objective"~~ objective function, between two successive iterations, is less than a specified threshold.

Claim 6 (Original): The method of claim 1, wherein said clustering comprises analyzing word data, and said feature vectors comprise multiple-word frequencies of said data records.

Claim 7 (Currently Amended): The method of claim 1, wherein said clustering comprises analyzing data records having numerical and categorical attributes, and said feature vectors comprise linearly-scaled numerical attributes ~~and each q-ary categorical feature using a 1-in-q representation of said data records~~.

Claim 8 (Currently Amended): A method for evaluating and outputting a clustering solution for a plurality of multi-dimensional data records; said data records having multiple, heterogeneous feature spaces represented by feature vectors, said method

comprising:

defining a distortion between two said feature vectors as a weighted sum of distortion measures on components of said feature ~~vector~~ vectors;

clustering said multi-dimensional data records into k-clusters using a ~~"convex programming"~~ convex programming formulation of a generalized k-means clustering function; and

selecting optimal feature weights of said feature vectors by an ~~"objective"~~ objective function to produce said solution of a final clustering that simultaneously minimizes average intra-cluster dispersion and maximizes average inter-cluster dispersion along all said feature spaces.

Claim 9 (Original): The method of claim 8, wherein said clustering includes initially applying a local minima of said clustering.

Claim 10 (Currently Amended): The method of claim 8, wherein said minimizing distortion of individual clusters includes taking said data records and iteratively determining *Voronoi* partitions until said ~~"objective"~~ objective function, between two successive iterations, is less than a specified threshold.

Claim 11 (Original): The method of claim 8, wherein said clustering comprises analyzing word data, and said feature vectors comprise multiple-word frequencies of said data records.

Claim 12 (Currently Amended): The method of claim 8, wherein said clustering comprises analyzing data records having numerical and categorical attributes, and said feature vectors comprise linearly-scaled numerical attributes ~~and each q-ary categorical feature using a 1-in-q representation of said data records~~.

Claim 13 (Currently Amended): A computer system for data mining and outputting a final clustering solution, wherein said system includes a memory for storing a database having a plurality of multi-dimensional data records, each having multiple, heterogeneous feature spaces represented by feature vectors, said system including a processor for executing instructions comprising:

defining a distortion between two feature vectors as a weighted sum of distortion measures on components of said feature ~~vector~~ vectors;

clustering said multi-dimensional data records into k-clusters using a ~~"convex programming"~~ convex programming formulation; and

selecting feature weights of said feature vectors;

wherein said instruction for selecting of said feature weights are optimized by implementing an objective function to produce said solution of a final clustering that simultaneously minimizes average intra-cluster dispersion and maximizes average inter-cluster dispersion along all said feature spaces.

Claim 14 (Cancelled).

Claim 15 (Original): The system of claim 13, wherein said instruction of said clustering includes an instruction for initially applying a local minima of said clustering.

Claim 16 (Original): The system of claim 13, wherein said instruction for clustering includes instructions for implementing a k-means clustering algorithm.

Claim 17 (Currently Amended): The system of claim ~~14~~ 13, ~~wherein said~~ further comprising an instruction for minimizing distortion of individual clusters ~~includes~~ including taking said data records and iteratively determining *Voronoi* partitions until said ~~"objective"~~ objective function, between two successive iterations, is less than a specified threshold.

Claim 18 (Original): The system of claim 13, wherein said instruction for clustering includes instructions for analyzing word data.

Claim 19 (Original): The system of claim 13, wherein said instruction for clustering includes instructions for analyzing data records having numerical and categorical attributes.

Claim 20 (Currently Amended): A program storage device readable by machine, tangibly

embodying a program of instructions executable by said machine to perform a method for evaluating and outputting a final clustering solution from a set of data records having multiple, heterogeneous feature spaces represented as feature vectors, said method comprising:

defining a distortion between two feature vectors as a weighted sum of distortion measures on components of said feature ~~vector~~ vectors;

clustering said multi-dimensional data records into k-clusters using a ~~"convex programming"~~ convex programming formulation; and

selecting feature weights of said feature vectors;

wherein said selecting of feature weights are optimized by an ~~"objective"~~ objective function to produce said solution of a final clustering that simultaneously minimizes average intra-cluster dispersion and maximizes average inter-cluster dispersion along all said feature spaces.

Claim 21 (Cancelled).

Claim 22 (Original): The device of claim 20, wherein said clustering includes initially applying a local minima of said clustering.

Claim 23 (Original): The device of claim 20, wherein said clustering comprises a k-means clustering algorithm.

Claim 24 (Currently Amended): The device of claim ~~21~~ 20, wherein said minimizing

distortion of individual clusters includes taking said data records and iteratively determining *Voronoi* partitions until said ~~"objective"~~ objective function, between two successive iterations, is less than a specified threshold.

Claim 25 (Original): The device of claim 20, wherein said clustering comprises analyzing word data, and said feature vectors comprise multiple-word frequencies of said data records.

Claim 26 (Currently Amended): The device of claim 20, wherein said clustering comprises analyzing data records having numerical and categorical attributes, and said feature vectors comprise linearly-scaled numerical attributes ~~and each q-ary categorical feature using a 1-in-q representation of said data records~~.